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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,106	01/18/2002	Raymond Marcelino Manese Lim	0023-0049	6552

44987 7590 11/15/2005

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EXAMINER	
BHATTACHARJEE, GOPA	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/050,106	LIM ET AL.	
	Examiner	Art Unit	
	Gopa Bhattacharjee	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-10,12-17 and 21-26* is/are rejected.

7)☐ Claim(s) *4,11,18-20 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 6-9, 13-17, 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson U.S. Patent 6, 885,667 in view of Sindhu U.S. Patent 5, 905, 725.

Claims 3, 5, 10 and 12 are rejected are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson U.S. Patent 6, 885,667 in view of Sindhu U.S. Patent 5, 905, 725 and further in view of O'Connell U.S. Patent 6, 922, 410.

Regarding claim 1, 8 and 22 a method, apparatus and sytem for redirect checking comprising: receiving a data packet on a first one of a plurality of interfaces Wilson teaches in Figure 5, a method of redirect packet where the network device receives packet from host at block 502 (column 5, lines 5-25); using a routing table identifying the next hop for the data packet. Block 504 determining whether the data packet originated from a station that is part of a same subnet as the next hop, and generating a redirect message, Wilson teaches in block 504 redirect message sent from the routing table by determining the next hop to reach the remote subnet is back out same interface that the packet was received on.

Wilson teaches methods and apparatus for sending a redirect packet to a station when the data packet originated from the station that is part of a same subnet as the next hop. Specifically, the data packet including a source address and a destination address is received by a plurality of interfaces, the next hop information for the data packet is generated from the packet's source and destination address, and using a routing table, the subnet of the originated station and the subnet of the next hop of the data packet is determined, in the case the originating station and the next hop are part of the same subnet, a redirect message is generated. The device is shown in Figure 6.

However, Wilson fails to disclose the interface index assignment to the incoming and outgoing data packets. However, Sindhu U.S. Patent 5, 905,725 discloses a method of data format in Figure 4B where the packet header field contains header information associated with a given packet and includes start offset information, packet length and

interface index information (column 5, lines 20- 25). A router may have multiple interfaces, apart from an IP address; each interface has an integer index. Therefore it would have been obvious to one of ordinary skills in the art at the time of invention to include into Wilson the determination of the subnet of the source and the next hop based on the interface index information of the incoming and outgoing data Packet.

One is motivated as such in order to determine the set of routers that have an interface on the subnet of the source node using interface index. Interface index is commonly used identifiers in network management applications. This interface index based determination of the interface of the subnet saves wasting of processing time and cost for device inventory, billing and fault detection.

Regarding claims 2 and 9 wherein identifying an outgoing interface includes method and device to retrieving outgoing interface index based on the forwarding information, however, Wilson fails to disclose the interface index assignment to the incoming and outgoing data packets, however Wilson teaches in block 502 and block 504, the determination of the interface of the subnet is based on the forwarding packet. Wilson further teaches in Figure 6 the CPU 1462 with interface 1468 determine the interface of the next hub.

However, Sindhu U.S. Patent 5, 905,725 discloses a method of data format in Figure 4B where the packet header field contains header information associated with a given packet and includes start offset information, packet length and interface index information (column 5, lines 20- 25). A router may have multiple interfaces, apart from an IP address; each interface has an integer index.

Therefore it would have been obvious to one of ordinary skills in the art at the time of invention to include into Wilson the determination of the subnet of the source and the next hop based on the interface index information of the incoming and outgoing data Packet.

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Claim 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson U.S. Patent in view of Sindhu as applied claim 1 above and further in view of O'Connell U.S. Patent 6, 922, 410.

The combination of Wilson and Sindhu fail to disclose the hash function to generate a hash value and comparing the generated hash value with a stored hash value.

Regarding claims 3 and 10, Wilson teaches the data packets originated from a station includes a source address and a destination address identifying the source and the destination respectively (column 3, lines 5-15), the router is able to ascertain the destination network of the packet. The router then determines at block 504 whether the data packet originated from a station that is part of a same subnet as the next hop (column 3, lines 15-20).

However, O'Connel teaches to decode network addresses with hash table. In Figure 3, the header part of the packet is employed in a hushed form to address pointer in a hash table 16a, the pointer pointing to an entry in the associated data table 17a, in which entries comprise network address, MAC address and port mask of the router (Column 3, lines 35-40). Generation of hash function and hash values is well known in the art.

Therefore it would have been obvious to one of ordinary skills in the art at the time of invention to include O'Connel into Wilson. One is motivated to use a high speed hashing technique for determining a port in a packet data network that a packet should be associated with to avoid slowing throughput of the network.

Regarding claims 5 the method of claim 3, wherein stored hash value is based on a first address of the next hop, on the same hash function, same number of significant bits of the first address, claim 5 essentially recites the same limitation for claim 3 and hence rejected.

Regarding claim 6, transmitting the redirect message to the station originating the data packets, Wilson teaches that the redirect message generated is send back to the station originating the data packets; The message including next hop information having a same destination address as the packet transmitted, Wilson teaches in Figure 5 router composes message that will provide a more optimal path Block next to 504 Figure 5.

Regarding claims 7, bypassing the generation of the redirect message, Wilson teaches, in Fig 5 block 504 and the next block redirect message is composed when the router determines the source and the next hop are on the same subnet.

Regarding claim 8, a network device comprising an input device configured to receive a data packet on a first plurality of interfaces, Wilson teaches a block diagram of a network device in Figure 6. Figure 6 displays interfaces 1468, processor 1462, memory 1362, bus 1415 (column 6, lines 25-30). These interfaces may include ports, they may also include independent processor and RAM (Column 6, lines 55-65). Processing logic, configured to assign interface index, generate forwarding information, identifying outgoing interface index, determine whether the incoming index is equal to the outgoing index, determine data packet originated from a station that is part of a same subnet as the next hop and generate a redirect message, Wilson teaches the router in Figure 6 receives data packet, ascertain the destination network of the packet,

determines data packet originated from a station that is part of a same subnet as the next hop and generate a redirect message.

Regarding claim 12, stored hash value is based on a first address associated with the next hop and is generated using the same hash function and the same number of most significant bits, it essentially recites the same limitations for the system claim 3 and hence rejected for the same reason.

Regarding claim 13, the device transmit the redirect message to the station originating the data packet, redirect message including next hop information for packets having a same destination address as the transmitted data, Wilson teaches the router of Figure 6 transmit redirect message including the next hop information (Figure 3) when the next hop address belongs to the same subnet as of the source.

Regarding claim 14, bypass the generation of the redirect message, Wilson teaches in Figure 5, block 522 where no redirect is sent to host.

Regarding claim 15, device comprising an input device configured to receive a data packet including a source and a destination address, Wilson discloses in Figure 6, a network device comprising device interfaces 1468 (column 6, lines 50-65) for sending and receiving data packets over the network. These interfaces may include independent processor and in some instance volatile RAM. The interface receives a packet from a host, where the packet includes a source address and a destination address (Column 3, lines 10-15); processing logic, route look up logic , output device, determine whether the data packet originated from a station that is part of a same subnet as the next hop for the data, Wilson disclose the Interfaces 1468 (may include independent processor, RAM), bus 1415, memory 1461, CPU 1462 performs processing logic, routing table computations (column 6, lines 30-35) to determine whether the data packet originated from a station that is part of a same subnet as the next hop for the data.

Regarding claim 16, output device is configured to forward a message to the host processor indicating that a redirect message associated with the received data packet is required, Wilson discloses in Figure 6, a network device comprising device interfaces 1468 (column 6, lines 50-65) for sending and receiving data packets over the network which may include independent processor, RAM.

Regarding claim 17, the host processor is configured to receive the message, generate redirect message and transmit the redirect message, Wilson discloses in Figure 6 which contains CPU 1462 and other independent processors which can be configured according to the claim.

Regarding claim 21, output device is configured to generate a hash value using a portion of the source address of the data packet, and compare the hash value, 21 essentially recites the same limitations of claim 3 and hence is rejected.

Regarding claim 22, a system comprising means for receiving data, generating forwarding information, retrieving stored information, determining whether the data packet to be forwarded on the first interface, whether packet originated from a same subnet, generating redirect message, Wilson teaches in Figure 5 and 6 a method and an apparatus which receive data, generate forwarding information, retrieve stored information and determine the subnet information.

Regarding claim 23, a memory configured to store incoming interface index, Wilson discloses in Figure 6 memory 1461 which hold the interface information; input unit to receive data packets including processing logic configured to access the memory, Wilson discloses interface unit1468 with processors and memory which can be configured to perform the require logic; a route look up table, Wilson discloses the CPU 1462 performs routing table computations (column 6, lines 30-35); an output unit including memory, processing logic, Wilson discloses interface unit1468 with processors and memory which can be configured to perform the require logic.

Regarding claim 24, Processing logic device configured to indicate that a redirect message is required, Wilson discloses Wilson discloses the CPU 1462 performs routing table computations (column 6, lines 30-35) and based on that redirect message is generated.

Regarding claim 25, device comprising a host processor, Wilson discloses in Figure 6 CPU 1462 wherein the output unit transmits a redirection.

Regarding claim 26, the device host processor is configured to forward a redirect message and the redirect message including next hop information, Wilson discloses in Figure 6, processor can be configured to forward a redirect message 302 Figure 3 with the destination network 304 and a next hop router 306 (column 4, lines 35-40)

Allowable Subject Matter

2. Claims 4, 11, 18, 19, 20 and 27 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reason for the indication of allowable subject matter.

The combination of references Wilson, Sindhu and O'Connell in the prior arts fail to teach or suggest methods and apparatus for the "hash function" specified in the claim 4, 11 and 27.

Regarding claims 18, 19, and 20, Wilson, Sindhu and O'Connell disclose the packet comprises of destination network and next hop IP address. The references in the prior art fail to teach or suggest the redirect message consisting of an outgoing interactive index, a hash value and a prefix length.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gopa Bhattacharjee whose telephone number is (571) 272-0778. The examiner can normally be reached on Monday through Friday from 9:00 AM to 4:30 PM ETS.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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